

## II. Remarks

Claims 1-21 were pending in this application and were rejected. The present amendment cancels claim 17, adds new claim 24 and amends claim 1 to more particularly point out and clarify Applicants' invention. After this amendment, claims 1-16, 18-21 and 24 will be pending.

Reconsideration of the application in view of the above amendments and the following remarks is respectfully requested.

### Rejections under 35 U.S.C. § 103

Claims 1, 2, 5-9 and 15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,977,653 issued to Schmid et al. ("Schmid") in view of GB Patent No. 2,370,671 issued to Bauch et al. ("Bauch"). In view of the amendments and remarks contained herein, Applicants respectfully submit that the rejections of claims 1, 2, 5-9 and 15 are traversed.

Claim 1 has been amended to recite that the sensor unit has a smaller volume than that of the control unit. This amendment includes the limitation recited in claim 17 which was rejected under 35 U.S.C. § 103(a) as being unpatentable over Schmid in view Bauch and further in view of U.S. Patent No. 6,522,992 issued to McCall et al. ("McCall").

Applicants' invention is concerned with providing a sensor unit on a vehicle such that the sensor unit is subject to less vibration than conventional sensor-control unit arrangements, and is able to sense acceleration

representative of the acceleration of the vehicle as a whole. The sources of vibration may be from the control unit, the vehicle and/or the sensor unit itself. By forming a sensor unit distinct from the control unit and reducing the volumetric size of the sensor unit relative to the control unit, the sensor unit may be spaced apart from the control unit (one source of vibration) in an area of the vehicle (i.e. a central longitudinal line of the vehicle, e.g., located on a central tunnel of the vehicle) with reduced vibration and representative vehicle acceleration. In particular, this area of the vehicle is especially space constrained and by reducing the volumetric size of sensor unit, placement of the unit along this area is possible. Moreover, the smaller sensor unit will also generate less vibration itself. Specifically, the smaller volumetric size of the sensor unit relative to the control unit is an important aspect of Applicants' invention preferably providing an improved safety arrangement with favourable distribution of components around the vehicle, while improving the accuracy with which a crash situation may be detected. Applicants' Application at paragraphs [0005]-[0007], [0010], [0040], [0045], [0047]-[0048] and [0058].

Schmid discloses a detection configuration 20 in communication with a central configuration 10 to be used for side-impact detection and for firing a restraining device of a vehicle. The impact detection configuration 20 includes an acceleration sensor 5 and is disposed in a side part of the vehicle. The detection configuration 20 also includes a controller 3 which evaluates the acceleration signal provided by the sensor 5 and supplies the signal to the

central configuration 10. The central configuration 10 includes a second control unit 2 and evaluates the signals from the detection configuration 20 to determine whether or not firing element 100 is to be fired. *Schmid* at col. 7, lines 6-51 and Figure 3. As noted by the Examiner, Schmid fails to disclose the detection configuration 20 as being located along a central longitudinal line of the vehicle and as having a smaller volume than the central configuration 10.

Bauch discloses a side impact sensing system 10 that has a first sensor unit 18 mounted on the door 36 of the vehicle 12 and a second sensor unit 26 mounted in the passenger compartment 52. The first and second sensors units provide signals to a controller 14 which compares the signals to determine whether to inflate an airbag 28. *Bauch* at Abstract. Notably, Bauch fails to disclose that the second sensor unit 26 has a smaller volume than the controller 14.

McCall discloses a core inertial measurement unit (IMU), including acceleration sensors, to be employed with a Micro Electronic Mechanical System (MEMS) for guidance and navigation. The Examiner posits that McCall teaches the core inertial measurement unit (IMU) which is miniaturized and light weight and that it would have been obvious to one of ordinary skill to include the vehicle safety arrangement taught by Schmid and Bauch and to miniaturize the corresponding sensor unit relative to the control unit as disclosed by McCall. This is however not the case. McCall discloses that “compared to a conventional IMU [emphasis added]...the mechanical and

electrical hardware” of McCall’s IMU is smaller in size. *McCall* at Abstract and Col. 5-24. This is not the language as recited in claim 1 of Applicants’ invention where “the sensor unit has a smaller volume than that of the control unit.” Specifically, McCall fails to disclose that the IMU has a relatively smaller volume than a control unit. To the contrary, McCall discloses that the IMU contains a control circuit board 9 (analogous to a control unit) and thus, the IMU is larger than the control unit 9. *Id.* at Col. 18, lines 50-55 and Figures 17 and 18.

Moreover, the Examiner is speculating that the detection configuration 20 of Schmid would be smaller than the central configuration 10 if the detection configuration 20 was made smaller compared to “a conventional” detection configuration as discussed in McCall. There is nothing in any of the references to suggest such an outcome.

Furthermore, McCall discloses that the IMU comprises a first circuit board 2, a second circuit board 4, a third circuit board 7, and the control circuit board 9 (as discussed above) arranged inside a metal cubic case 1. *Id.* Clearly, the ICU is substantial in size/volume. In practice, substituting the ICU of McCall for the detection configuration 10 of Schmid would not arrive at the relatively smaller sensor unit of Applicants’ present invention and thus, the advantages of an improved safety arrangement of the present invention would not be realized.

In that the combination of the references fail to disclose or suggest the limitations noted as being absent, it would be concluded that the combination

of Schmid, Bauch and McCall cannot render claim 1, and the claims dependent thereon, as obvious. The rejection under § 103 is therefore improper and should be withdrawn.

Claims 3 and 4 were rejected under 35 U.S.C. §103(a) as being unpatentable over Schmid in view Bauch and further in view UK Patent No. GB 2,292,126 issued to Burton et al. ("Burton"). Applicants respectfully submit that the rejections of claims 3 and 4 are traversed.

Since claims 3 and 4 depend on claim 1 and since Burton fails to disclose a sensor unit having a smaller volume than that of a control unit, the combination of Schmid, Bauch and Burton cannot render the claims of the present invention as obvious. The objection under §103(a) is therefore improper and should be withdrawn.

Claim 10 was rejected as being unpatentable over Schmid in view of Bauch and further in view of U.S. Patent No. 6,113,138 issued to Hermann et al ("Hermann"). Applicants respectfully submit that the rejection of claim 10 is traversed.

Since claim 10 depends on claim 1 and since Hermann fails to disclose fails to disclose a sensor unit having a smaller volume than that of a control unit, the combination of Schmid, Bauch and Hermann cannot render the claims of the present invention as obvious. The rejection under §103(a) is therefore improper and should be withdrawn.

Claim 11 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Schmid in view Bauch and further in view of U.S. Patent No. 6,459,366

issued to Foo et al ("Foo"). Applicants respectfully submit that the rejection of claim 11 is traversed.

Since claim 11 depends on claim 1 and since Foo fails to disclose a sensor unit having a smaller volume than that of a control unit, the combination of Schmid, Bauch and Foo cannot render the claims of the present invention as obvious. The rejection under §103(a) is therefore improper and should be withdrawn.

Claims 12-14, and 16 were rejected under 35 U.S.C. § 103(a) as being unpatentable Schmid in view of Bauch and further in view of U.S. Publication No. 2002/0084636 issued to Lewallen et al. ("Lewallen"). Applicants respectfully submit that the rejection of claims 12-14 and 16 are traversed.

Since claims 12-14 and 16 depend on claim 1 and since Lewallen fails to disclose a sensor unit having a smaller volume than that of a control unit, the combination of Schmid, Bauch and Lewallen cannot render the claims of the present invention as obvious. The rejection under §103(a) is therefore improper and should be withdrawn.

Claims 17-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Schmid in view Bauch and further in view of McCall. Claim 17 has been cancelled and accordingly, the rejection of claim 17 is now moot. Applicants respectfully submit that the rejections of claims 18-20 are traversed.

Since claims 18-20 depend on claim 1 and since McCall fails to disclose a sensor unit having a smaller volume than that of a control unit, the

combination of Schmid, Bauch and McCall cannot render the claims of the present invention as obvious. The rejection under §103(a) is therefore improper and should be withdrawn.

Claim 21 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Schmid in view Bauch as applied to Claim 1 above, and further in view of U.S. Patent No. 6,145,389 issued to Ebeling et al. ("Ebeling"). Applicants respectfully submit that the rejection of claim 21 is traversed.

Since claim 21 depend on claim 1 and since Ebeling fails to disclose a sensor unit having a smaller volume than that of a control unit, the combination of Schmid, Bauch and Ebeling cannot render the claims of the present invention as obvious. The rejection under §103(a) is therefore improper and should be withdrawn.

Claim 24 has been added by the present amendment and is believed to be patentable for its own specific elements recited therein.

Conclusion

In view of the above amendments and remarks, it is respectfully submitted that the present form of the claims are patentably distinguishable over the art of record and that this application is now in condition for allowance. Such action is respectfully requested.

Respectfully submitted,

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